June 29, 1943. W. O. BURKE 2,322,916

REFRIGERATOR LATCH OPERATING MECHANISM

Filed May 9, 1942

Fig. 1.

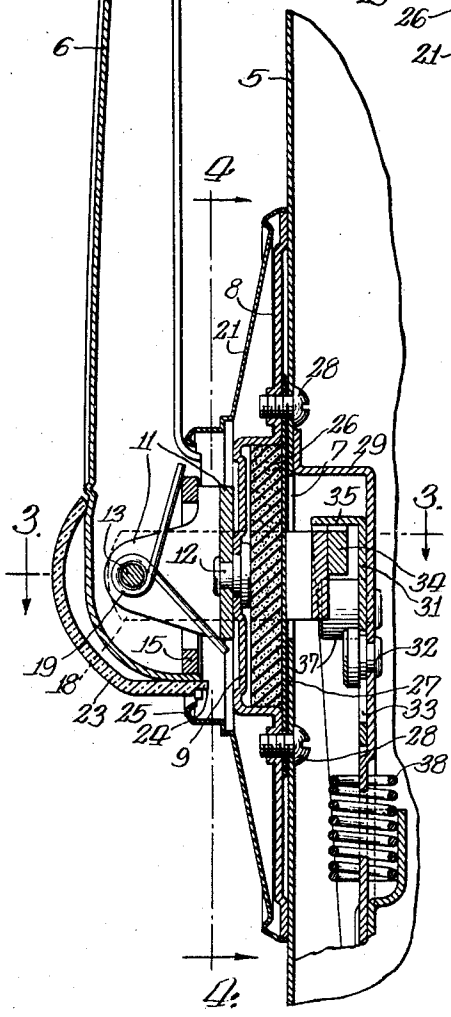


Fig. 2.

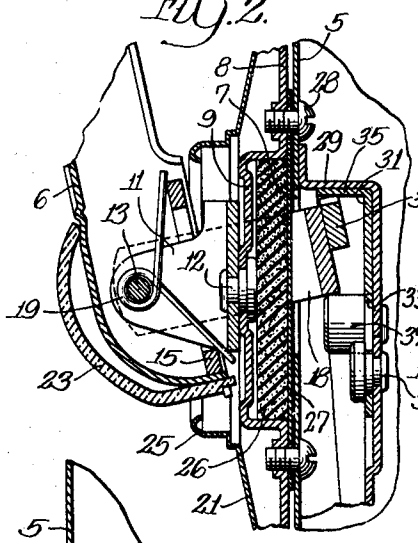


Fig. 3.

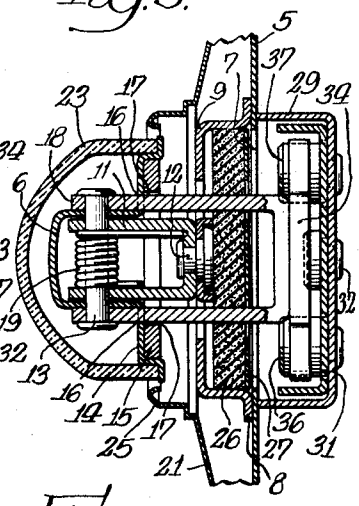
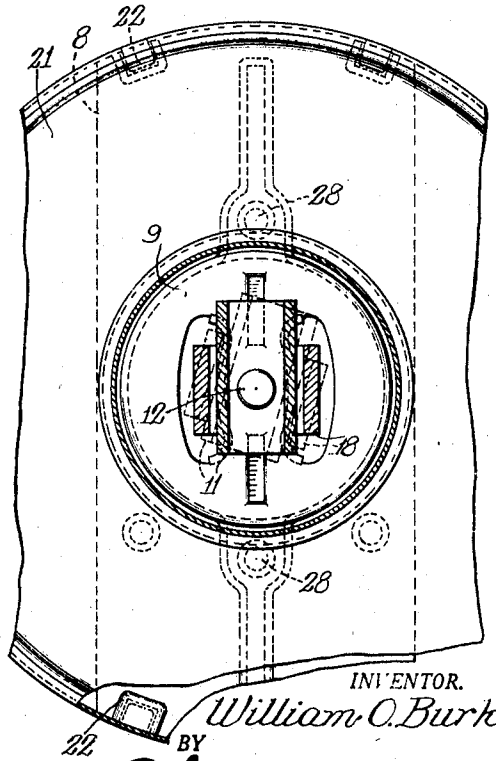


Fig. 4.



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REFRIGERATOR LATCH OPERATING MECHANISM

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Application May 9, 1942, Serial No. 442,294

4 Claims. (Cl. 292—122)

This invention relates to operating mechanism for latches, and the specific embodiment thereof here disclosed is designed particularly for use on refrigerator doors.

The invention aims to provide an operating mechanism including a handle so mounted that the mechanism will release the latch on movement of the handle either outwardly away from the face of the door or transversely across the face of the door.

More specifically the invention provides a mounting for the operating handle which permits universal movement of the handle and mechanism by which such movement in any direction is transmitted to the latch. My present invention accomplishes the purposes of, but constitutes an improvement upon, the operating mechanism disclosed in my pending application Serial No. 338,873, filed June 5, 1940.

To facilitate an understanding of the principles of my invention, a preferred form thereof is illustrated in the accompanying drawing.

Referring to the drawing,

Fig. 1 is a sectional view of a mechanism constructed in accordance with my invention;

Fig. 2 is a fragmentary view similar to Fig. 1 showing the parts in another position;

Fig. 3 is a sectional view on the line 3—3 of Fig. 1; and

Fig. 4 is a sectional view on the line 4—4 of Fig. 1.

Referring to the drawing more in detail, a fragment of the door upon which the mechanism is mounted is indicated by reference character 5 and the operating handle by reference character 6. The outer wall of the door is provided with an opening 7 over which is mounted a supporting member 8 in the form of a plate having an outwardly off-set portion 9. A U-shaped yoke 11 is swiveled upon the outer face of the off-set portion by means of a stud 12 extending through said portion and the base of the yoke. The yoke is, therefore, capable of rotative movements about the stud 12 in either direction from the normal position shown, one swiveled position of the yoke being indicated in dotted lines in Fig. 4.

The handle 6 straddles the yoke 11 and is pivotally mounted thereon by means of a pintle 13. The handle, which is formed of sheet metal, comprises a circular flanged base 14 reinforced by a heavier inset ring or washer 15, both the base and the reinforcement being centrally apertured to accommodate the yoke 11. The base is also provided with slots 16 and the reinforcement 15 is provided with recesses 17 to accommodate the legs of a U-shaped arm 18 also pivoted on the pintle 13. The extension of the arm legs through the reinforced handle base provides a rigid connection between this arm and the handle, so that they move together and are for practical purposes integral. A spring 19 surrounding the pintle, and having one end engaging the base of the yoke 11 and its other end engaging the reinforcing ring 15, serves to normally retain the handle and parts associated therewith in the position shown in Fig. 1. It will be manifest that the pivotal mounting of the handle 6 on the pintle 13 permits outward swinging movement of the handle away from the face of the door from the position shown in Fig. 1 to that shown in Fig. 2, and that the swivel mounting of the yoke 11 upon the off-set portion 9 of the supporting plate 8 permits transverse swinging movement of the handle in either direction about the stud 12.

An ornamental cover plate 21 overlies the supporting plate 8 and is secured thereto by tangs 22 bent inwardly from the perimeter of the cover plate beneath the margin of the supporting member. An ornamental cap 23 fits over the pivoted portion of the handle and is attached thereto by a plurality of tangs 24, said cap projecting within the confines of the flanged upper portion 25 of the cover plate 21.

A sponge rubber disc or block 26 of substantial thickness is disposed within the outwardly offset portion 9 of the supporting member 8 and is slotted to snugly embrace the legs of the operating arm 18. A gasket 27 interposed between the supporting member 8 and the wall 5 of the door and held in position by the screws 28 by which the supporting member 8 is mounted, serves to hold the block against displacement. The block serves as a hermetic seal to prevent heat transference by air leakage around the operating mechanism. The yieldability of the block permits the requisite movements of the operating arm 18 without breaking the seal.

A channel-shaped housing 29 attached to the inner face of the door wall carries a channel-shaped reciprocatory slide 31 which is slidably secured to the housing by a rivet 32 extending through a slot 33 in the slide. The lower end of the arm 18 is provided with a transversely extending cross-head 34 disposed contiguously to the end wall 35 of the slide and in proximity to a pair of studs 36 and 37 projecting inwardly from the housing 29. The slide is slotted to accommodate these studs and permits its reciprocatory movements. A coil spring 38 interposed between the slide and the housing urges

the slide into the normal position shown in Fig. 1, all as disclosed more in detail in my aforesaid application, in which is also disclosed the door latch and the operative connections between said latch and the slide 31, not necessary here to be shown.

An outward pull exerted upon the handle 6 will cause the handle head to pivot on the pintle 13 from the position of Fig. 1 to that of Fig. 2, thereby swinging the arm 18 in a counter-clockwise direction to move the slide 31 from the position shown in Fig. 1 to that shown in Fig. 2, thereby actuating the latch. The slide can also be actuated to operate the latch by swinging the handle laterally in either direction from its normal position. Should it be swung away from the observer for instance, viewing Fig. 1, the cross-head 34 will fulcrum against the stud 37, thereby causing the other end of the bar to move the slide 31 into the position shown in Fig. 2. The fulcruming action of the cross-head will cause the end of the handle to travel away from the face of the door as it is moved laterally, so that when the slide 31 has been moved to the position shown in Fig. 2, the handle will be in an inclined position relatively to the door. Should the handle be swung in the opposite direction away from normal position, the stud 36 will serve as the fulcrum for cross-head 34, the slide will be actuated and the handle will assume an inclined position relatively to the door face. Thus the slide will be moved to the position shown in Fig. 2 to operate the latch upon movement of the handle in any direction.

It will be manifest from the foregoing that I have provided a latch operating mechanism capable of being actuated by movement of a handle either outwardly or transversely from normal position; that the parts are of simple construction which can be economically manufactured; that a universal mounting of the handle is provided without the employment of a ball and socket construction; and that the mechanism is hermetically sealed against air leakage in all positions of the parts.

The structural details shown and described for illustrative purposes may obviously be varied within considerable limits without departing from the spirit of the invention as defined in the following claims.

I claim:

1. A refrigerator latch operating mechanism, comprising a supporting member adapted to be mounted on a door, a yoke swiveled on said member, a handle pivoted on said yoke, said handle being movable outwardly about said pivot and laterally about said swivel, an operating arm rigidly connected with said handle and provided at its inner end with a cross-head, a latch operating slide arranged in cooperative relation to said cross-head, and fixed pivot studs in proximity to the ends of said cross-heads about either of which said cross-head may pivot to actuate the slide upon lateral movement of said handle.

2. A refrigerator latch operating mechanism, comprising a supporting member having an outwardly off-set portion, a heat insulating element disposed in said off-set portion, a handle support swiveled on said off-set portion, a handle pivoted on said handle support, an operating arm rigidly associated with said handle and projecting inwardly through said insulating element, a cross-head carried by said arm, a slide arranged to be actuated by said cross-head, and pivot abutments with which said cross-head cooperates to actuate said slide upon movement of said handle about said swivel.

3. A refrigerator latch operating mechanism, comprising a supporting member adapted to be mounted on a door, a yoke swiveled on said membed, a sponge rubber sealing disc interposed between said member and the face of the door, a handle pivoted on said yoke, an operating arm fixed with respect to the handle and projecting through said disc, a cross-head carried by the inner end of said arm, a latch operating slide disposed in cooperative relation to the cross-head, and a plurality of fixed pivot studs adapted to be engaged by said cross-head upon swiveling movement of said handle to actuate said slide.

4. A refrigerator latch operating mechanism, comprising a dished supporting member adapted to be mounted on the door, a sponge rubber sealing block disposed within said supporting member, a yoke swiveled on said member, a handle pivoted on said yoke to swing outwardly about said pivot and laterally about said swivel, an operating arm extending from said handle through said sealing block and provided at its inner end with a cross-head, a latch operating slide and a plurality of fixed pivots disposed in proximity to said cross-head whereby said slide is actuated by pivotal movement of the cross-head about one of said pivot studs upon swiveling movement of said handle.

WILLIAM O. BURKE.